



Safety Data Sheets

I.C.R:PC-09.18

Revision Date:22/03/17

Revision Number: 00

SAFETY DATA SHEET

In accordance with 29 CFR 1910.1200:2012, ANSI Z400.1-2010, and ISO 11014-1: 2009.

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

1.1 Product Name:

HIPS 3D Printer Monofilament.

1.2 Chemical name:

High Impact Polystyrene.

1.3 Product Use:

3D Printing

1.4 Supplier:

Nicieza y Taverna Hnos. S.A.I.C.y A., 6620, Chivilcoy, Buenos Aires , Argentina.

1.5 Emergency telephone numbers (24 hours a day):

(Medical Information) (651) 632-9273 (Transportation Information) CHEMTREC: 800-424-9300 (in the United States) (Transportation Information) CHEMTREC: (703) 527-3887 (outside the United States)

2. HAZARDS IDENTIFICATION

Emergency Overview: Irritating vapors to respiratory system and eyes may form when polymer is processed at high temperatures.

Molten or heated material in skin contact can cause severe burns.

Routes of Entry FOR HOT MATERIAL: Skin contact. Eye contact. Inhalation.

Potential Acute Health Effects

Eyes Dust may cause mechanical irritation to eye.

Heated Polymer: Eye contact can cause serious thermal burns. Vapors formed when polymer is heated may be irritating to the eye.

Skin No known acute effects of this product resulting from skin contact at room temperature.

Heated Polymer: skin contact can cause serious thermal burns.

Inhalation Negligible at room temperature. Nuisance dusts can be irritating to the upper respiratory tract.

Irritating vapors may form when the polymer is processed at high temperatures.

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Ingestion No effects are expected for ingestion of small amounts. May be a choking hazard.

Potential Chronic Health Effects
Medical Conditions Aggravated by Overexposure
Overexposure /Signs/ Symptoms

CARCINOGENIC EFFECTS: Polystyrene is not a known carcinogen. Not listed as a carcinogen by OSHA, NTP or IARC.

Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

No adverse health effects anticipated from the solid pellet.

See Toxicological Information (Section 11)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Occupational exposure limits, if available, are listed in Section 8.

Substance Name	CAS #	% by Weight
Polystyrene (Impact)	9003-55-8	~ 100

4. FIRST AID MEASURES

Eye Contact: Rinse with water for a few minutes. Seek medical attention if necessary

Skin Contact: Polymer: NO known EFFECT on skin contact, rinse with water for few minutes.

Heated Polymer: For serious burns from heated polymer, get medical attention. In case of skin contact, immediately immerse in or flush with clean, cold water.

Inhalation Allow the victim to rest in a well-ventilated area.

Ingestion: No First Aid procedures are needed. No further relevant information available.

5. FIRE-FIGHTING MEASURES

Flammability of the Product: May be combustible at high temperature

Auto-ignition Temperature: 440°C (824°F)

Flash Points >200°C (>392°F)

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Flammable Limits Not available.

Products of Combustion Carbon oxides (CO, CO₂) and soot.

Fire Hazards in Presence of Various Substances
Explosion Hazards in Presence of Various Substances

Fire Fighting Media and Instructions

No specific information is available in our database regarding the flammability of this product in presence of various materials.

Risks of explosion of the product in presence of mechanical impact: Not expected. Risks of explosion of the product in presence of static discharge: Possible.

Risk of explosion from dust accumulation of this product is possible. See MSDS section 7 Handling for more information.

SMALL FIRE: Dry chemical extinguisher (ABC or AB). Use water spray or fog. LARGE FIRE: Use water spray or fog. Do not use water jet.

May re-ignite itself after fire is extinguished.

Protective Clothing (Fire) Wear MSHA/NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.

Special Remarks on Fire Hazards Fire may produce irritating gases and dense smoke.

Special Remarks on Explosion Hazards: Flowing material may produce static discharge, igniting dust accumulations.

Processing or material handling equipment may generate dust of sufficiently small particle size, that when suspended in air may be explosive.

6. ACCIDENTAL RELEASE MEASURES

Small Spill and Leak: Pellets on the floor could present a serious slipping problem. Good housekeeping must be maintained at all times to avoid this hazard. Sweep, shovel, or vacuum material into clean containers.

Large Spill and Leak: Use a shovel to put the material into a convenient waste disposal container. Do not allow any potentially contaminated water with pellets to enter any waterway, sewer or drain.

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7. HANDLING AND STORAGE

Handling: Avoid Temperatures of 600°F (316°C) or above.

Handling of plastic may form nuisance dust. Protect personnel.

Pneumatic material handling and processing equipment may generate dust of sufficiently small particle size that, when suspended in air, may be explosive. Dust accumulations should be controlled through a comprehensive dust control program that includes, but is not limited to, source capture, inspection and repair of leaking equipment, routine housekeeping and employee training in hazards. See NFPA 654.

Dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

When handled in bulk quantities, this product and its associated packaging may present a crushing hazard due to the large masses involved, possibly resulting in severe injury or death.

Storage: Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below established levels. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Eyes: Safety glasses with side shields.

Body: Coveralls.

Respiratory: Ventilation is normally required when handling this product at high temperatures. Wear appropriate respirator when ventilation is inadequate.

Hands: Thermally insulated gloves required when handling hot material.

Feet: Shoes.

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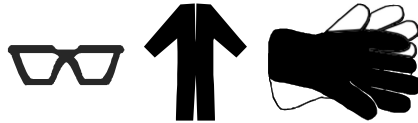
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Protective
Clothing.

Pictograms)



Personal Protection in Case of a Large Spill: Safety glasses. Gloves. Coveralls.

Product Name: Polystyrene (Impact)

Exposure Limits: Consult local authorities for acceptable exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES OF THE POLYMER

Physical State and Appearance: Solid. Pellets.

Color: Polystyrene is translucent.

Odor: Odorless.

Molecular Weight: Not available.

Molecular Formula: $(-CH(C_6H_5)-CH_2-)_x$ $(-CH_2-CH=CH-CH_2-)_y$

Melting/Freezing Point: $>132.22^{\circ}C$ ($270^{\circ}F$)

Specific Gravity: 1.04 (Water = 1)

Volatility: Negligible.

VOC: 0 (%)

Solubility in Water: Insoluble in water.

10. PHYSICAL AND CHEMICAL PROPERTIES OF THE POLYMER

Stability and Reactivity: The product is stable. Avoid Temperatures of $600^{\circ}F$ ($316^{\circ}C$) or above.

Conditions of Instability: Keep away from heat and flame.

Incompatibility with

Hazardous Decomposition Products: Hazardous decomposition products are carbon monoxide, carbon dioxide, dense smoke, and various hydrocarbons. Exposure of polystyrene to extremely high temperatures (600 deg F or higher) may cause partial decomposition. Chemicals that may be released include styrene monomer, benzene, and other hydrocarbons.

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Hazardous Polymerization: Under normal conditions of storage and use, hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicity to Animals: Very low toxicity to humans or animals.

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Not listed as a carcinogen by OSHA, NTP or IARC.

Other Toxic Effects on Humans: Not considered to be dangerous to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Avoid release to the environment. This substance is not expected to bioaccumulate through food chains in the environment.

Biodegradable/OECD: Not readily biodegradable. Persistent in the environment.

Mobility: Because of its physico-chemical properties, the product has a low soil mobility.

13. DISPOSAL CONSIDERATIONS

Waste Information: Transfer to an approved disposal area in accordance with federal, state, and local regulations.

Consult your local or regional authorities.

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14. TRANSPORT INFORMATION

DOT Classification for Bulk Shipments (non bulk shipments may differ): Not a DOT controlled material (United States).

Proper Shipping Name/ Description: Not applicable.

UN Number: Not established

Packing Group: Not applicable.

Marine Pollutant: Not listed in Appendix B to 49CFR172.101

Hazardous Substances Reportable Quantity: Not listed in Appendix A to 49CFR172.101

Special Provisions for Transport:Not applicable.

TDG Classification: Not controlled under TDG (Canada).

IMO/IMDG Classification: Not controlled under IMDG.

ICAO/IATA Classification: Not controlled under IATA.

USCG Proper Shipping Name:Not Available

15. REGULATORY INFORMATION

HCS Classification: This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

U.S. Federal Regulations: TSCA inventory: All components listed

SARA 301/302/303

No chemicals in this product are listed as extremely hazardous substances in 40 CFR 355, Emergency Planning And Notification (Appendix A to Part 355).

SARA 304

No chemicals in this product require reporting under the requirement of 40 CFR 355, Emergency Planning And Notification (SARA extremely hazardous substances

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listed in Appendix A to Part 355 or CERCLA hazardous substances listed in Table 302.4 of 40 CFR Part 302).

SARA 313

This product contains no chemicals in excess of the applicable de minimis concentration that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Table 372.65).

SARA 311/312

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and as such does not require reporting under the requirements of 40 CFR 370, Hazardous Chemical Reporting: Community Right-To-Know.

International Regulations

WHMIS (Canada) Not controlled under WHMIS (Canada).

DSCL (EEC) This product is not classified according to EU legislation.

CEPA DSL/NDSL This material is listed or exempted.

International Lists: Australia inventory (AICS): This material is listed or exempted. China inventory (IECSC): This material is listed or exempted. Japan inventory (ENCS): This material is listed or exempted. Japan inventory (ISHL): Not determined.

Korea inventory (KECI): This material is listed or exempted.

New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.

Philippines inventory (PICCS): This material is listed or exempted.

State Regulations: CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986.

Ethylbenzene was listed on California Proposition 65 in June 2004. Under the law, a warning must be given unless a business demonstrates that the exposure to the listed chemical poses no significant risk. With this notification Total Petrochemicals & Refining USA, Inc. (TPRI) provides a "clear and reasonable" warning concerning the presence of this listed chemical at low levels in polystyrene. TPRI has chosen to provide a warning simply based on its knowledge about the presence of the listed chemical as a constituent of the starting materials.

The Office of Environmental Health Hazard Assessment's Proposition 65 Implementation Office has published a No Significant Risk Level (NSRL) for ethylbenzene of 54 micrograms/day for exposure by inhalation and 41 micrograms/day for oral exposure. TPRI worked with industry groups to develop a workbook to assist our customers to comply with the California regulations with

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respect to ethylbenzene. This workbook is available to our customers upon request (please contact customer service at 1-800-344-3462). We have no scientific information to suggest that the presence of the very low levels of ethylbenzene in polystyrene poses any significant risk to the consumer.

16. OTHER INFORMATION

Label requirements: Irritating vapors to respiratory system and eyes may form when polymer is processed at high temperatures.

Molten or heated material in skin contact can cause severe burns.

**Hazardous Material
Information System
(U.S.A.)**

Health	0
Fire Hazard	1
Reactivity	0
Personal Protection	

**National Fire Protection
Association (U.S.A.)**



References: HSDB - Hazardous Substances Data Bank

Other Special Considerations:

Acceptable business/technical terms necessary for medical device applications must be developed by contacting your Total Petrochemicals & Refining USA, Inc. sales representative. Without such documented business terms, Total Petrochemicals & Refining USA, Inc. makes no representations and disclaims all warranties, express or implied, concerning biocompatibility and/or suitability of this product for medical device applications.

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